Chapter 4 and Chapter 5 TGT

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| 1. State the first of the four parts of Dalton’s Atomic Theory. | 1. All elements are composed of tiny indivisible particles called atoms. |
| 1. State the second of the four parts of Dalton’s Atomic Theory. | 1. Atoms of the same element are identical. The atoms of any one element are different from those of any other element. |
| 1. State the third of the four parts of Dalton’s Atomic Theory. | 1. Atoms of different elements can physically mix together or can chemically combine in simple whole-number tatios to form compounds. |
| 1. State the last of the four parts of Dalton’s Atomic Theory. | 1. Chemical reactions occur when atoms are separated, joined, or rearranged. Atoms of one element, however, are never changed into atoms of another element as a result of a chemical reaction. |
| 1. What is the smallest particle of an element that retains its identity? | 1. An atom. |
| 1. Define electron. | 1. Electrons are negatively charged subatomic particles. |
| 1. Define proton. | 1. Protons are positively charged subatomic particles. |
| 1. Define neutron. | 1. Neutrons are subatomic particles with no charge but with a mass nearly equal to that of a proton. |
| 1. Which two subatomic particles have nearly the same mass? | 1. Proton and neutron |
| 1. Which two subatomic particles are found in the nucleus? | 1. Proton and neutron |
| 1. How is the periodic table organized? | 1. By increasing atomic number. |
| 1. Define isotope. | 1. Isotopes are atoms that have the same number of protons but different numbers of neutrons. |
| 1. What are two things that are different in two different isotopes of the same element? | 1. Answers may include: atomic number, number of protons, number of electrons |
| 1. What are two things that are the same in two different isotopes of the same element? | 1. Answers may include: mass number, number of neutrons, atomic mass |
| 1. Define period. | 1. A horizontal row on the periodic table. |
| 1. Define group or family. | 1. A vertical column on the periodic table. |
| 1. What did Democritus believe about atoms? | 1. Democritus believed that atoms were indivisible and indestructible. |
| 1. What instrument can observe individual electrons? | 1. A scanning tunneling microscope can observe individual atoms. |
| 1. Define atomic mass | 1. Atomic mass of an element is a weighted average mass of the atoms in a naturally occurring sample of the element. |
| 1. What is the periodic table? | 1. A periodic table is an arrangement of elements in which the elements are separated into groups based on a set of repeating properties. |
| 1. Define energy level. | 1. The specific energies an electron in an atom or other system can have |
| 1. List the 4 most used atomic orbitals | 1. s, p, d, and f |
| 1. Summarize the Aufbau Principle | 1. In the Aufbau Principle, electrons occupy orbitals of lowest energy first. |
| 1. Summarize the Pauli Exculsion Principle | 1. Only two electrons can occupy any sub-orbital, and when they do they must have opposite spins |
| 1. Summarize Hund’s Rule | 1. One electron enters each sub-orbital before doubling up in any one sub-orbital. |
| 1. List, in order of increasing energy, the first 7 orbitals to fill in an aufbau diagram | 1. 1s, 2s, 2p, 3s, 3p, 4s, 3d |